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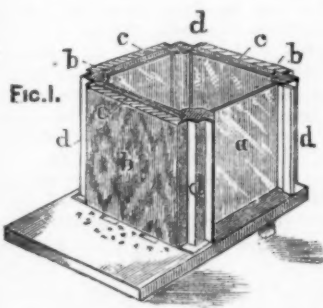
THOMAS G. NEWMAN,  
EDITOR AND PROPRIETOR.

## Hives for Observation.

It is our aim to make honey a staple product. To this end we have endeavored to popularize the consumption of honey by the masses, as well as to raise the standard of production, by applying correct principles and progressive art to the management of the apiary.

Public manipulations with bees and magnificent honey exhibits are the most attractive features of State, County and District Fairs. There are many good reasons for introducing such, but the chief one, perhaps, is that those who produce honey for the market may be induced to present it in the most marketable shape; for the new methods and new ideas of practical management must take the place of the old and undesirable ones.

At the American Institute Fair, in New York, in 1877, Dr. Worrall exhibited a colony of bees in his hive,



DR. WORRALL'S OBSERVATION HIVE.

the brood chamber of which is shown in the engraving. It has glass sides all around, and it was a great attraction. Prof. Hasbrouck, Mr. Locke

and others, also exhibited bees in observation hives.

Bees and honey are already the great attraction at such Fairs as have given prominence to this industry—and this will become more apparent each successive year. Michigan, Nebraska, Missouri, and some other States, have tried a small Bee and Honey Show, and the results have been so satisfactory, that they are now intending to have them on a much larger scale.

When in Great Britain, during the summer of 1879, we found that the most attractive features of the Fairs were the public manipulations with bees, and the very large exhibition of honey of captivating beauty. For exhibiting bees, observation hives were used—those having glass sides, through which the bees may be seen at work—the hives being inside the exhibition building, with a tube covering the entrance, and running through the side of the building, giving free passage, in and out, for the bees. Sometimes, a glass box inclosing each frame, arranged like leaves of a book, with a common entrance to all of them, from the tube running through the side of the building, is made to exhibit bees. This gives an opportunity for thorough examination of the whole colony.

Prof. Cook has one of the latter kind in his study, and, by request, he has sent us a drawing of it, from which we have made the illustration, so that our readers will obtain a good idea from it and the accompanying description given by the Professor:

### OBSERVING HIVES.

Of course, every live bee-keeper will possess and read one or more of the books that treat of bees and their management. These place the whole subject before him, and, if well indexed, enable him to study any particular phase of the subject at will. He will, also, if wise, take and read one or more of our excellent periodicals. These keep him versed in the progressive steps in his art, and the

various discoveries and improvements can be appropriated as soon as made.

There is still another method to gain knowledge, which though, perhaps, not so full of practical aid as the above, will greatly benefit, even on the practical side of our business; but, more than this, it will enable us to confirm what we learn from the books, and will do more than anything else to exalt our appreciation of the wondrous habits and instincts of the little insects with which we have to do. It will do much to make our life work as full of wonder and admiration as it is of pleasure and profit. I refer to the possession of an "Observing Hive;" so that, with each leisure hour, we may look into the very life habits of our pets. Such observation, in any field of natural history, always excites interest, imparts instruction and ennobles the observer.

Few experiences in my life have yielded more real pleasure and valuable instruction, than the hours spent in watching the strangely interesting labors of the bees, as studied in my library, by use of the small "observing hive," here illustrated.



PROF. A. J. COOK'S OBSERVATION HIVE.

I do not think we need any complex arrangement. A simple, uni-frame hive, with glass sides, which may be darkened by doors, is cheap, easily made, and will enable us to watch any operations carried on in the hive. I have even had bees in such a hive prepare to swarm. Of course, such limited quarters will not permit much increase, and so, when the brood commences to hatch out, the bees must be shaken from the frame, and it replaced with a frame of empty comb, or, better still, a frame of comb foundation. We then can watch the bees as they transform the foundation into

a sheet of beautiful comb. If the bees are not gathering at the time of this transfer, we must either feed them, or give them a comb containing some honey. We may now watch, not only the wondrous fashioning of the comb, but the laying of eggs, the packing of pollen, the finding of the larval bees, and the many other wonderful manipulations, to be witnessed in the "Observing Hive."

My hive, which is correctly represented in the engraving, is neatly made of black walnut, and forms, of itself, quite a pretty ornament in my study; while, with its wondrous contents, it forms an attraction which can hardly be surpassed. It will pay every apiarist to keep such a uniform hive, for his own edification, the instruction of his children, and the entertainment of his friends.

**Bees' Tongue Register.**—We have received, from Mr. John H. Martin, one of his improved Bees' Tongue Registers. We notice that he has reconstructed and simplified it during the past year. As it registers by hundredths of an inch, it is a very useful article by which to measure the length of the tongue of bees, so as to determine those best fitted for collecting the nectar from red clover or other honey-producing plants which have a deep secreting cell. This is a step in the direction of "breeding the best bees," and we welcome Mr. Martin's invention as very useful and eminently progressive.

A beginner, J. L. H., fed the bees sugar syrup while they were out for a flight on Feb. 16, and says that they had a fight, some being killed by those of the same colony, and then asks: "Why is this?" Feeding the bees in the open air close to the hives, is always dangerous, and might have caused "robbing" to such an extent as to have given the beginner a "very dear lesson." He has two colonies each of black bees and Italians, and adds, "the Italians did not come out much." The angered bees were blacks (perhaps, hybrids), and, no wonder that they were on the rampage. They had feasted on the syrup, become angry because there was no more, and then fought over it.

The Baroness Burdette-Countess, who is not only the richest lady in the world, but the most liberal one, and who is also the President of the British Bee-Keepers' Association, gave a New Year's dinner to eight hundred of her tenants, and afterwards personally presented a gift to each one of her guests.

### Average Intelligence About Bees.

Mr. H. R. Boardman, E. Townsend, O., sends us the following from *Good Words*, which is now "going the rounds of the local press:"

Honey is, as a rule, very sweet and fragrant, but it is sometimes injurious to human beings. Here I may mention that no bee can suck honey out of flowers, as is popularly supposed. She licks it out with her tongue, the end of which is covered with hairs, so as to convert it into a brush, scrapes it between the jaws, and so passes it into the crop where it is changed into honey. What property may be in the crop which converts flower juice into honey, we do not at present know. To all appearance, the crop is nothing but a bag of exceedingly-fine membrane, and yet, after remaining for a little time in the crop, the flower juice undergoes a change of consistence, flavor and scent, and whether the insect is a wild or domestic bee, the change is identical throughout.

Mr. Boardman very aptly remarks that this demonstrates "how rapidly we are advancing in the knowledge of bee-culture, especially as promulgated by the average newspaper. It is too good to be lost. If knowledge were bliss, 'twere folly to be wise."

**Honey Wine.**—The Clarke Co., Va., *Courier* has the following:

Mr. J. Luther Bowers, a bee-keeper of this county, has presented us with a bottle of honey wine, the preparation of which was very simple, the only ingredients being honey and water. It was very palatable. From 51 colonies of bees he realized, last year, 1,280 lbs. of choice comb honey, 1,200 lbs. of which he sold for \$240. One colony furnished the enormous yield of 153 lbs., which, at the price he received for his honey (20 cents per lb.), brought \$31.60, or nearly as much as two acres of wheat. The value of such a colony reaches beyond \$100, and shows what energy and improved methods will accomplish. Mr. Bowers prefers to use the 1-lb. sections, as honey in that form commands a better price and sells more readily.

Letters and communications have accumulated so much that we give up the space this week to an extra quantity. Several long reports of conventions are waiting, but we give the communications a chance this week, before they get too stale.

We have received a copy of "The Simmins Method of Direct Introduction," a pamphlet of 28 pages, on introducing queens, detailing his methods and management, and may be had of Samuel Simmins, Rottingdean, Brighton, England, for 15 cents.

**Answering Questions.**—Mr. Heddon, Dowagiac, Mich., writes as follows:

I desire, and expect to be able to answer all questions pertaining to business transactions; that I must do as a duty, and I would not like to have it otherwise understood. But I have a host of long, pastime letters, mixed all through with questions regarding bee-culture, but I cannot possibly answer them all, and do the other work allotted to me. I will answer all questions sent direct to me, or to the bee-papers, on separate sheets, with spaces left for answers. JAMES HEDDON.

Questions for Mr. Heddon to answer, may be sent to us, or to him direct, and they will be promptly answered in the BEE JOURNAL.

### New Catalogues and Price Lists.

We have received the following new Catalogues and Price Lists of Bees, Queens or Apiarian Supplies:

Dr. J. P. H. Brown, Augusta, Ga.  
Naramore & Wood, N. Lansing, Mich.  
Richardson Bros., Port Colborne, Ont.  
Edward B. Beebe, Oneida, N. Y.  
Wm. W. Cary & Son, Colerain, Mass.  
W. P. Henderson, Murfreesboro, Tenn.  
Wm. Ballantine & Son, Sago, Ont.  
J. D. Goodrich, East Hardwick, Vt.  
E. T. Lewis & Co., East Toledo, O.

### SEED AND PLANT CATALOGUES.

Wm. Rennie, Toronto, Ont.  
J. A. Everitt, Watonsontown, Pa.  
F. E. Fassett & Bro., Ashtabula, O.  
Chas. A. Green, Rochester, N. Y.  
I. F. Tillinghast, LaPlume, Pa.  
Also, Crawford's Strawberry Culture, Cuyahoga Falls, Ohio.

Several correspondents ask if it is essential to write only on one side of the sheet of paper when preparing an article for the JOURNAL. For us, it is just as well to write both sides, and saves postage in sending it.

### Our Premiums for Clubs.

Any one sending us a club of two subscribers for 1883, for the Weekly, with \$4, will be entitled to a copy of Bees and Honey, in cloth, postpaid.

For three subscribers, with \$6, we will send Cook's Manual, in paper, Emerson's Binder for the Weekly, or Apiary Register for 50 colonies.

For four subscribers, with \$8, we will send Cook's Manual in cloth, or Apiary Register for 100 colonies.

For five subscribers, with \$10, we will send the Apiary Register for 200 colonies, Quinby's New Bee-Keeping, Root's A B C of Bee Culture, or an extra copy of the Weekly BEE JOURNAL for one year.

To get any of the above premiums for the Monthly BEE JOURNAL send double the number of subscribers, and the same amount of money.





For the American Bee Journal.

## How Shall We Report?

G. M. DOOLITTLE.

On page 58, Mr. F. H. Finch takes exception to "those large yields published," and thinks they were "not weighed on standard scales." Also, on page 60, S. J. McKennie says, "I have the highest respect for intelligent and scientific statements, but no relish for exaggerated statements," and by the editorial note at the close of Mr. K.'s remarks, I see that you, Mr. Editor, are not just clear as to how a report should be made out. I once reported 566 lbs. in one season from 1 colony of bees, hence, I would be classed by Mr. K. as one of those "who exaggerate," and by you, Mr. Editor, as being one of those whose "statements are unfair, and mislead the unsophisticated." As I have never intended to be "unfair" or "mislead," perhaps it were well to look into the matter regarding how a report should be made out.

I had supposed it fair to give a report based upon the "spring count" of colonies in a yard, dividing the total production of honey during the season, by the total number of colonies in the spring, and qualifying by saying they increased to such a number. However, I now see that Mr. K. does not consider this as fair. But, supposing they do not increase at all, as was the case with Mr. Carroll's colony that gave the 800 lbs., would it then be fair to report 800 lbs. from one colony. The editor says not; for, in his case, he used "3 or 4 ordinary hives by extra stories one over another," thereby making his report "unfair and misleading."

But, again, supposing they did not increase at all, and were kept in a single story hive, as was the case with the colony which gave me the 566 lbs. Would it then be unfair to report that amount as the production of one colony? Although I listen intently, I hear no one say "unfair." Well, if the same number of bees, all the production of one queen, make the same number of pounds in 2 or 3 ordinary hives, by extra stories being placed one over the other, I cannot see why it should be more unfair than the other.

Again, if the bees swarm and are hived in a separate hive, and none of the young or second queen's bees are old enough to labor in the field, I do not see how it should be unfair to report the product of the two the same as if they had remained in one hive. The reason why these "big reports," as they are called, are considered "exaggerated," is, that those calling them such, think as does Mr. K., that 20,000 to 25,000 bees constitute a colony. If we make 20,000 bees a standard from which to report, as does Mr. K., probably Mr. Finch will have no need of

offering his \$500 for some one to instruct him how to have his bees make one-half as much as some report, for his 20,000 bees will secure nearly or quite as much as will 20,000 of Mr. Carroll's.

In the spring of 1877, I selected an ordinary colony of bees, and set it apart for extracted honey. This colony was no better than one-third of my yard would average, and was not helped in the least from any other colony. I built them up as fast as possible, by the means I usually employ, which I gave in my series of articles during 1882. By the time apple trees were in bloom, the queen had brood in 12 frames, and from that source I extracted 16½ lbs. A few days after this, the 12 frames, bees and all were set into a hive 4 feet long, and a division board placed at the rear of the combs. Once a week two more empty combs were inserted in the centre of the brood-nest, until the hive contained 20 combs well filled with brood. As white clover was now yielding honey, the hive was filled out with frames of empty combs, which numbered 32. I did not expect the queen would occupy any of these last 12 combs, but in this I was mistaken, for before white clover was through yielding honey, I found brood in every one of the 32 combs, which, if placed compactly together, was fully equal to 15 frames full of brood. Each frame gives 100 square inches, and each square inch gives 50 worker bees, hence, there were 5,000 bees to hatch out of each of these frames every 21 days, or 75,000 from the 15 frames.

The average life of the bee, in the work season, is 45 days, hence, it will be seen that the queen can place two and one-seventh generations of bees on the stage of action, to where one generation dies off. Two and one-seventh times 75,000=160,700, as the number of bees in that hive during the basswood yield. It was a sight worth beholding when they were just starting for the field in the morning, for they would rush out like an army, and then, later, the entrance would be one living mass going to and fro. From clover, they gave 186 lbs.; from basswood, 287½ lbs., and from buckwheat, 76 lbs.; making 566 in all. Now, if we were to call 20,000 bees a colony, this would give but about 71 lbs. per colony, and I do not think either of the correspondents would be willing to call that an exaggerated report.

Thus, it will be seen that all these conflicting reports can be harmonized, when we understand how many laborers there are to perform the work. As I have said before (and it will bear repeating), the main secret in getting a large yield of honey, is to get plenty of bees, just at the right time to take advantage of the honey harvest. If you understand your location, and get your bees as above, you will have no cause to complain of your yield, if the flowers secrete honey.

Borodino, N. Y.

[Reports had been "going the rounds" simply stating that from 800 to 1,200 pounds of honey had been obtained by one colony in Texas or

somewhere else. No matter what explanations were made when the report was given, the statement was divested of details, and reiterated as "a good story" to tell, being so unreasonable that no one would believe it. Of course, it was understood that it was an ordinary colony; this led Mr. McKennie to figure it out (in his letter on page 60), and that "figuring" we desired to correct in our foot note, by saying that such colonies were "doubled up to the capacity of 4 or 5 ordinary hives, by extra stories, one over another"—that the colony was *not* an ordinary, but an extraordinary one! It will easily be seen that to those laboring under the idea that a colony of the usual size was spoken of, the statements were "unfair," "misleading," and "unreasonable." This was the idea we intended to convey, but, perhaps, we were not sufficiently explicit, and have, therefore, been misunderstood. We certainly never thought of reflecting upon any one's report, as some have presumed. We hope this will be sufficiently clear and satisfactory.—ED.]

For the American Bee Journal.

## Moving Bees on a Hand Sled.

G. F. WILLIAMS.

During the fall of 1880, about two weeks after our severe winter began, I moved 9 colonies from my father's, a distance of two squares, on a hand-sled, to my own home.

The entrances were partly clogged with ice, and the bottom boards were very icy. So, thinking it best to give them a nice, dry one, as well as to protect them above, I carried them into the kitchen, removed the bottom boards, putting dry ones in their places, put a piece of thin cloth over the frames of each, on which a chaff cushion was placed, using during the operation, a smoker, when necessary, to keep the bees in the hives.

Eight of these were carried into the cellar and one put out of doors, protected by placing a store box over it, and filling the intervening space with sawdust. Of the 8 in the cellar, only 1 seemed to suffer harm from the moving; large numbers dying and clogging the entrance, which was removed about every week.

Early in March, they were all carried out for a flight, and again put back. Towards the latter part of March, they were again carried out for a flight, and not one returned. The one spoken of above and two others soon dwindled, leaving plenty of brood and eggs. The one left out all winter came through strong and healthy.

I am of the opinion now, knowing little of bees then, that if I had not removed them from the cellar for three or four weeks, two would not have dwindled.

Farmers about here, who wish to move bees, always move them in the winter. It is now a wonder to me, since I have read up on improved bee-culture, that any of the 9 lived through the long and tedious winter, and I hope no one will be so unwise as to move bees until warm weather. I, for one, shall not, at least until we have a great deal more knowledge of the "busy bee" and dysentery.

New Philadelphia, O.

For the American Bee Journal.

### Central Illinois Convention.

The Bee-Keepers' Association of Central Illinois met according to previous announcement.

A large number of bee-keepers of McLean and adjoining counties assembled at the surveyor's office, in the Court House, in Bloomington, on the 10th inst.

Officers elected for one year: President, J. L. Wolcott; Vice President, Mrs. F. A. Baller; Secretary, James Poindexter; Treasurer, O. Barnard, all of Bloomington.

Owing to the lateness of the hour appointed for the meeting, the time was principally occupied in perfecting an organization and getting the Association in working order.

Thirty-two names were enrolled. It was decided to hold meetings quarterly. Adjourned to meet the second Wednesday in May (9th), at 10 o'clock a. m., in Bloomington, at same place.

JAS. POINDEXTER, Sec.

For the American Bee Journal.

### The Eyes of a Bee.

C. THEILMANN.

In examining the heads of bees with the microscope, I found the sides, which appear to the bare eye as if the high brown spots were the eyes, but found these two spots, all thinly covered with hair, without any glassy, bright or clear spot whatever, and the skin or outside covering appears like grained leather, when looking with the bare eye. Looking closer, with head three little, round, glassy, skinny the microscope, I found on top of the spots, one is in the centre, a little ahead of the two, which are one on each side; there are no hairs close around these spots, but a bunch of hair between the three, and the head has to be held in a certain position, in order to see all three at once. If these three spots are not the eyes, where are they? I have examined spiders heretofore, and found from four to six of such little glassy spots on their heads, which I would call eyes.

My bees have been closed up now for over three months, without a flight, as it has been cold ever since, with over 2 feet of snow, and for the last six weeks the mercury has registered from 10° to 40° below zero, in the morning, except the last few days, when it showed 32° above. My bees outdoors (30 colonies) need a flight, as some of them have the dysentery. My

130 colonies in the bee-house got a little uneasy, these warm days, as the temperature in it went up to 65° with ventilator all open, and the main door open, its whole width, one whole night. This morning all is quiet, as it is 13° below zero outside; no dysentery appears in my bee-house yet.

Theilmanton, Minn., Feb. 17, 1883.

[The large eyes which you saw without the microscope, are the compound eyes; the three small ones are the



simple eyes, as shown in the accompanying engraving of the head of a worker bee, magnified.—Ed.]

For the American Bee Journal.

### The Standard Langstroth Hive.

M. M. BALDRIDGE.

Having shown on page 55 of this JOURNAL that the standard Langstroth frame is 18 $\frac{3}{4}$  inches long instead of 18 $\frac{1}{2}$  inches, outside measure, I now desire to say a few words about the standard Langstroth hive. The standard hive, as I understand the matter, should have 10 standard Langstroth frames—no more and no less—that being the number given and recommended by Langstroth in his work on bees—the highest and only authority to follow. Now, Langstroth makes the hive, or outside case, to hold 10 frames, precisely 14 $\frac{1}{2}$  inches wide, inside measure, but I find, in practice, that it is not necessary to make exactly that width of hive for 10 frames. I make the hive 14 inches wide to avoid the fraction, and find many times that I can use even 11 frames just as well as 10 in that width of hive. In fact, the combs will, other things being equal, be built straighter and nicer with 11 frames than with 10. I therefore find that a hive 13 $\frac{1}{2}$  or even 13 inches wide, inside measure, will answer for 10 frames, but to have Langstroth hives, of standard size, we must adhere as closely as possible to the length, width, and depth, inside measure, as given by Mr. Langstroth, or else we may as well quit talking about standard hives.

But there are quite a number of bee-keepers in the United States and elsewhere, who are to-day far in advance of Mr. Langstroth, in some respects, in practical experience (and when I say this I mean no disrespect to Mr. L.), who prefer the 8-frame hive, with standard frames, to the 10-frame hive. They have used both sizes of hives, side by side, in the same

apiary, and claim that they have uniformly secured better results from the smaller hive. Now, that being the case, it is folly and waste of time to try to induce all bee-keepers to use the Langstroth standard hive, although they might be willing to use the standard frame. From what has now been said, the reader will please observe that the standard hive and the standard frame are by no means synonymous terms.

It has been suggested that bee-keepers should hold a convention to see if they cannot in some way agree upon some standard hive to adopt. Now, to simplify matters, let me suggest that it might be far better, and less expensive, for bee-hive makers to agree among themselves to make the standard Langstroth frame of the same length and depth, both outside and inside measure, and the outer box or case of the same length, depth and width, inside measure, the width depending on the number of frames to be used, whether that be 8 or 10, more or less, the main object being to make the frames interchangeable. Bee-hive makers are the proper parties, so it seems to me, to agree upon such matters, as Tom, Dick, Harry and old-man Bungler have no more business to make bee hives, honey boxes, foundation, hives, etc., of modern construction, than has the former to make wagons, reapers, threshing machines, etc. As a rule, every branch of business is, or should be, carried on as a specialty, and bee-culture is, or should be, no exception. Bee-culture, however, has several distinct branches, and there are men so organized as to carry on two or more of them at the same time very successfully. But, in general, it will not pay bee-keepers to try to run all the branches as specialties at the same time. That being the case, the majority will find it better and more profitable to purchase certain supplies for their apiaries from specialists. I may be mistaken about this, but think not; it having been my experience for nearly a quarter of a century. And, to get the best results, two or more bee-keepers should club together in ordering supplies, and thus secure the lowest possible prices.

As I am not now engaged nor interested in furnishing "supplies for the apiary," and do not again expect to be very soon, it will not, therefore, be necessary for any one to impute improper motives to any of the statements set forth in this article.

St. Charles, Ill.

For the American Bee Journal.

### System in the Apiary.

A. E. FOSTER.

"A place for everything, and everything in its place." I know of no place (unless it is in the family) where this rule should be followed more closely than in the apiary. The prosperous bee-keeper is always in a hurry, needing different supplies as he examines different hives, and it is very necessary that he should know just where to find things as he needs them.



If you have not this faculty well developed, cultivate it, by assigning everything in your apiary a place, and keeping everything in its place. The time lost in hunting "here, there and everywhere" for what you need, will amount to a great deal, more than any one would suppose; and it will not only save time, but keep you from getting in a bad humor, which generally follows one of those long searches. The mother who teaches her child to put things where it gets them, does the child good, and saves herself much trouble, in picking things up after it.

My bees are wintering well on the summer stands.

Covington, Ky., Feb. 14, 1883.

For the American Bee Journal.

### Moving Bees in Winter.

R. M. DENHAM.

As some desire instructions about moving bees, and having had a little experience in the matter, I will tell what I know about it. I purchased two colonies of bees in box hives, of a neighbor, in the winter, and desiring to move them, when the snow was on, I put into the sled bed an armful of hay on which to set the hives. Some time before this, I had read Quinby's "Mysteries of Bee-Keeping," in which I found instructions on this point, and I desired to follow him. He said, when moving bees (in box hives), turn the bottoms upward, and place a sheet or something of that kind over the hives, to keep the bees from flying. My neighbor was an old man, and had kept bees (in box hives) many years, and, of course, thought he knew more about how to manage the thing than I did; consequently, he pushed the hay to one side and set the bees flat on the bottom of the sled bed, bottom down. I suppose he thought it would not be wholesome for the bees, to turn their heads down. I said nothing, however, but started home. The road was quiet rough in places, and the bees were considerably jolted, drive as carefully as I could. I had not gone far until I discovered that some of the combs were broken; this was a swarm of the previous summer, and the combs were tender and easily broken, and before I got them home, the combs were all broken off, and the whole "business" was lodged in the bottom. The other hive, being full of old combs, stood the jolting without breaking. This cured me of ever again hauling bees on a sled; though, I believe, had Mr. Quinby's instructions been followed, the combs would not have been broken.

Of course, moving bees in frame hives is a different thing, as the bottom bar, if the combs are built down to it, support them. I would always haul bees, short distances, in a spring wagon, and place the hives so that the combs would stand crosswise with the bed. I have moved bees this way, in the honey season, without damage.

This winter, in this locality, has been quite favorable one for bees,

when they had sufficient stores, as the thermometer here has not been below zero. I gave my 12 colonies sugar-syrup, made from the best grade of coffee A sugar, sufficient to winter on, and they are doing very well. I placed 8 of them in a clamp, and left the rest on the summer stands.

The future prospects for bee-keepers here are, I think, good, as there is an excellent crop of white clover on the ground, and we usually have a good crop of locust bloom, which comes in shortly after fruit bloom.

St. Clairsville, O.

For the American Bee Journal.

### Sections, Separators, Etc.

F. C. BENEDICT.

It is with interest that I read the different articles on half-pound sections, separators and their use. It seems to me that a novice or any one who contemplates their use would be so confused they would hardly know whether there was a size known that would hold the required amount. Some talk about narrow sections and straight combs, without separators. Let us look into the brood chamber of a good colony and see the combs. Straight! Yes, beautiful combs as I ever saw; take the same combs after a good honey flow, and how are they? Instead of being  $1\frac{1}{2}$  inches thick as we would like them (and about the thickness we find them when left to their own ways), the bees have built the top of this one a little thicker, contracted the next, no two straight and perfect. Why! because there are no separators to guide them, and they will expand one and contract another. Now, this will be found the same in the surplus arrangement, and let the section be so narrow that, they must make their combs less than  $1\frac{1}{2}$  inches, and greater will be the disappointment to those who shall use what might well be called the wafer sections, without separators. Some of the sections will be so thin they will be of no value, while others will be built into sections adjoining, making it hardly possible to get them in marketable shape. The only safe way would be to carry them single-handed and place them upon the consumers, table.

Some may think me taking a bold stand, when I state that I hold, that no one (I care not who) can manipulate 100 colonies of bees for comb honey, and produce it in first-class marketable order, whether it is to be glassed or unglazed, without the use of separators of some kind. Some contend that separators lessen the crop of surplus, but it is only a delusion under which some labor who are not up to the times in producing comb honey in perfect shape by the right use of separators. I know of what I speak.

A short time since I was upon the market of one of our large cities, where I saw tons of honey, and upon the cases I saw the names of some of our noted apiarists; nearly all were from the West, and produced without separators, and put upon the market

without glassing. All were leaking more or less, some so badly that the honey had run from top to bottom of the piles and granulated in streams as large as your finger. Why! because some of the combs were over thick, and chafed in the cases. Now, had the producers of that honey done their part, as well as nature and the bees did theirs, they might have realized 3 to 5 cts. per pound more for their product. This would far more than pay all expense of putting it upon the market in first-class order, rather than third or fourth class, as was some of the above.

Now, if we are to use half-pound sections, why not let those who contemplate trying them make a section that can be used to good advantage with the surplus arrangement at hand, and not be to the expense of new racks, frames, etc. If we must have different-sized fixtures for each sized section, what a collection of unnecessary traps will soon be on our hands. After three years' experience I find that a section, to hold  $\frac{1}{2}$  lb. of honey, must contain  $17\frac{1}{2}$  cubic inches, whether one thickness or another. Then adjust your section to your surplus fixtures on hand. Have your 1 and 2-lb. sections the same height, so that you can use the same width separator for both sizes. In short, have just as few extra fixtures as possible, for it increases the expense and takes off the profits. I manipulate sections in racks, and one-sized rack answers for the 3-sized sections with only extra separators for half-pound sections; one sized shipping case for 1 and 2-lb. sections.

Perry Centre, N. Y.

For the American Bee Journal.

### Wood Separators and Bee Glue.

C. R. ISHAM.

In the BEE JOURNAL (page 95), Mr. James Heddon, in an excellent article on Surplus Cases, etc., makes the following request: "I wish Mr. Isham would send me a sample of his wood separators, and tell us, through the BEE JOURNAL, how he puts up with or avoids the glue difficulty spoken of above." I have sent Mr. Heddon a sample, for practical experiment, and the readers of the BEE JOURNAL will get the full benefit of his conclusions. As to "gluing up the less than bee spaces," I would say, as this space, when tin is used, remains open until closed with propolis by the bees; that it is not any more work to scrape off a thick than a thin chunk of glue, consequently I do not find much difference in cleaning the sections, whether thick or thin separators have been used. Those  $\frac{1}{8}$  inch in thickness (and also, if desired thinner ones), can be notched out so as to come down to the bottom and yet let the bees pass up. In my own arrangements I prefer to have pieces cut from separator material of just the proper size, they being of same thickness (1-16 of an inch), to fill spaces at ends of the sections above the separators, for, when the rack is filled and clamped, they

can be quickly put in place, and you have a neat job, with all outside spaces nicely closed.

After putting the rack or case upon the hive, have a piece of enameled cloth, cut the proper size, to smoothly lay over the sections, and on top of the cloth place a quilt or piece of bur-laps, and cover all with a flat board, fitted for the purpose. You now have a chamber for surplus storing which fully meets all the requirements of warmth, so necessary for comb building, early or late in the season, and violate no "scientific principles laid down by Langstroth."

In a case of sections thus arranged, the combs are of even thickness, with a smooth face, which gives the honey a much finer and more attractive appearance than when dented and bulged, as is likely to be the case where metal separators are not used. As wood is warmer than metal it economizes the heat of the hive which is the first great principle to be taken into consideration in making arrangements for obtaining surplus honey.

Peoria, N. Y.

For the American Bee Journal.

### Was That Bad Advice?

DR. G. L. TINKER.

It is really bad advice, or rather, it is impracticable to set a rack of the thin sections down on the brood frames? Mr. Heddon so implies, see page 95 of the BEE JOURNAL, and expresses great "surprise" that I should give such advice. Now, I am not less surprised that a man of the experience and ability of Mr. Heddon as a practical bee-keeper, should "warn all beginners" against the advice, giving as his objections to it that he had "been through the mill and graduated," and that it would be "violating the instincts of the bees," and be resented by "their glue and stings." Surely, it is not against the instinct of the bees to have continuous passage ways from the brood combs into the sections. Neither can there be any trouble of any consequence on account of propolis, nor special danger over any other plan because of stings.

Several apiarists of large experience have assured me that the plan suggested on page 72 of the BEE JOURNAL, is thoroughly practical. Not only so, but it is quite possible that in no other way can the half-pound section be made to pay the producer.

The writer has not taken a fancy to the half-pound sections with a view to using them by any of the ordinary methods in use for getting comb honey in the 1 and 2 pound sections. On the contrary, it seems to me that its failure as a financial adventure to the producer by these ordinary methods, is already a foregone conclusion.

There are other advantages from placing a rack of sections down on the brood frames than those already given, and among the first of these is the readiness by which the bees can be got to work in all of the sections at once. This is accomplished by putting on the first rack of sections with

a narrow strip of foundation fastened upright to the bottom of the section instead of being fastened to the top piece. The bees will go to work in the sections the instant there is enough honey coming in, and build the comb upwards, which they seem able to do just about as fast as to build it downwards. The next rack of sections may contain full sheets of foundation, if it is desired; and fastened to the top of the section as usual.

New Philadelphia, O.

For the American Bee Journal.

### New Method of Wintering Bees.

JOHN E. VAN ETTEN.

Any one can get along with bees in summer, but the great problem is how to winter them successfully; and for want of appliances, if for no other reason, out-door wintering must ever prevail with the million.

Some advise that bees should be placed in a cellar and kept dark. I tried this in a very dry, sandy cellar, with a cement floor, and yet with very disastrous results, arising from dampness and mold, which I find to be the greatest enemy of bees, especially in winter.

Others advise that they should be placed on the north side of a building or fence, so as to exclude the sun, and thus prevent them from flying out and becoming lost. I have also tried this with very fatal results.

Others advise placing them low down on the ground and letting the snow drift over them. This is sure death from the dampness generated from the melting snow.

Others advise covering with enameled cloth, packing in chaff, etc. These are all objectionable, because they absorb and hold dampness, which is dreadfully fatal to bees in winter, while they are in a dormant state and unable to ventilate the hive in their own natural way.

After years of trial I became convinced that all such theories were vicious and wrong in principle, and contrary to the natural requirements of the bee; that cold was not so much an enemy of bees in winter as dampness; that instead of being placed low down on the ground or in some bank, where all the dampness could be thrown into the hive, the hive should be elevated so that the winds could sweep away such dampness as might gather around it; that, instead of being kept dark in winter, the bees should have all the sunlight possible; that, instead of being placed in a shaded spot on the north side of a building or fence, they should stand on the south side, where they could receive the full benefit of the winter's sun—which, of all seasons, the bees most need in winter.

Acting upon these ideas, I placed my bees in the warmest spot I could find on the south side of a high, tight-board fence, where the full blaze of the winter's sun could pour down upon them. I elevated the hives about 2 feet from the ground to avoid the dampness, and gave them all the

ventilation which the Quinby hive will admit of. I discarded the enameled cloth, and, instead, covered with lath, which will not warp. On these I laid a mat of woolen cloth. In front of the fly hole, on flying days, I placed a portable box 2 feet long, 14 inches wide, and 7 inches high, covered with wire cloth, and, since then, I have never lost a colony. There is no dampness, no mold. If the bees want to fly, they fly around in the box, where they void themselves and receive the full benefit of the sun, and yet not a bee is lost upon the snow.

Kingston, N. Y., Feb. 2, 1883.

For the American Bee Journal.

### Short Articles Always Preferred.

REV. A. SALISBURY.

We live in an age of revolution and progress. Revolutionary, in not using many words to express a few ideas; progressive in using few words to express many ideas. Why do short articles get the preference of readers in newspapers and magazines? It is not supposable that any one will pen an article without an idea, so all who have much to do in this busy world read short articles first, where they can glean ideas fastest, and where "counsel is not darkened by a multitude of words."

O, the horror, after having spent the time to read a long article, and the discovery is made, at the close, that it was words almost without any ideas.

True, there is an apology for those who labor under the conviction that the world is depending on them for light, so duty requires them to write many and long articles. Words are cheaper than ideas. Do not think that reflections are only to be cast upon the literary world, outside of our profession; like others, we are liable to fall into certain channels, and write and rewrite the same ideas, over and over, and occupy a long time in explaining ourselves, so as to be understood, and when understood, no one is benefited.

Camargo, Ill.

For the American Bee Journal.

### Suggestions About Small Sections.

JAMES F. LATHAM.

To make a half-pound section, kerf a one-pound section on the inside of the top and bottom. Let the kerfing be wide enough to admit two pieces, each as thick as the sides of the section, and deep enough to leave 1-16 inch of whole wood on the outside. Cut two pieces, of a sufficient thickness to fill the kerfs, and in width corresponding with the sides of the section. Place the two pieces together and push them into the kerfs. A brad may be driven into the ends of each piece, if thought necessary. Put a piece of foundation in each half-section, and after the bees have filled them with comb and honey, they can be handled and crated as expeditiously



West Cumberland, Me., Feb. 9, 1883.

Two days after placing the frame in front of the hive, I examined the bees, and found about 3 square inches of comb filled with sealed brood, and enough bees to cover 4 Gallup frames.

The bees would fly inside the frame when the weather was too cold for bees in other hives to venture out, but I noticed the bees bumped themselves pretty hard against the glass when flying, and think they wore themselves out sooner than they would if the cold frame had not been there. They dwindled away so there was only about one-half as many bees and less brood on the first of May than there was when I first examined them. As I lost 5 other small colonies by the cold weather and dwindling, perhaps the cold frame had nothing to do with their dying.

My experience with mignonette, the past season, was as follows: First, it will not succeed under the shade of apple trees, if you give it the best of care. Second, it must be kept free from weeds. Third, it must be sown early, so to get a good start before dry weather sets in. I sowed the seed on different dates, from May 27 to June 19; the first sown did well. I sowed it in rows, covering the seed about  $\frac{1}{4}$  of an inch deep. The plants spread out about  $1\frac{1}{2}$  feet on either side of the row. They commenced to blossom May 27, and increased in bloom till August; and did not get through blossoming until freezing weather. The bees worked on the blossoms all day, and in all kinds of weather, when they could fly. They gather large quantities of pollen, but I do not know how much honey they get from it.

Wired frames seem to be the best for fastening comb foundation to, but the wire bothers in many ways. For example: The bees will often build queen-cells over them, and if you wish to save the cells you must cut the wire; then, again, in scraping wax and propolis from the top and bottom bars of frames, the wire hinders the operations. I have found the following a good way to remedy the difficulty: After the foundation has been all drawn out, and the honey in the comb extracted, cut the wires at the bottom of the frame, take hold the end of the wires (one at a time) and pull them backwards to the top bar, and then through it. They can be taken out quite fast; the wire cuts a slit through one side of the comb, but does not remove much wax, and the bees soon draw it together again.

I was surprised to see the following statement, which I clipped from the *American Cultivator*: "The flowers of raspberries, where this fruit is largely grown, are ruining the honey product of the neighborhood. The bees like this food, but no human being has been discovered who appreciates the product. The honey from raspberry flowers is a dirty yellow in color, with a very disagreeable flavor." The honey gathered here, when raspberry bushes are in bloom, is nice, but I do not know how large a percentage of it is raspberry. Will some bee-keeper, situated where there is an abundance of raspberries, please report upon this question.

Nantick, Mass., Feb. 5, 1883.

Attention is called to our new and liberal advertising rates for 1883.

## SELECTIONS FROM OUR LETTER BOX

### Foundation with High Side Walls.

I mail you, for the BEE JOURNAL museum, a sample of comb foundation made on my mill, that I think is the highest side wall ever raised by any mill.

WM. C. PEHLAM.

Maysville, Ky., Feb. 8, 1883.

[It certainly has the heaviest side wall we ever saw; the cells being deep enough to be utilized by the queen for receiving eggs, just as they are.—ED.]

### Changing to Other Hives.

I have 3 colonies of bees in American hives, these being the hives most used in this section. I have read a good deal about the Langstroth hive, but have never seen one. Would you advise me, as I have started with the American, to change to the Langstroth? Some bee-keepers here prefer the American hive, on account of the frames being deeper, and say the Langstroth frame is too shallow for this section for safe wintering.

A SUBSCRIBER.

Milan, N. Y., Feb. 16, 1883.

[Certainly not. Success depends much more on the management than on the kind of hives. Beginners should not change around, or have different sizes of frames. Begin right, stick to what you have commenced with, and "go-ahead."—ED.]

### Profitable Increase.

Here is my report for 1882: Apiary No. 1.—Spring, 1882, 6 colonies, fall, 1882, 14 colonies, average comb honey, spring count, 63 lbs.; apiary No. 2 (on shares), spring, 1882, 12 colonies; fall, 1882, 12 colonies; average, comb honey, 30 lbs. These figures demonstrate to me, that, at least in my locality, a judicious increase is profitable. All these colonies were substantially in the same condition on May 15, viz.: starving. I fed all alike with the above result.

F. C. GASTINGER.

Ada, O., Feb. 11, 1883.

### Comb Honey Rack.

I sent to the museum a sample of my improved comb honey super, with 28  $4\frac{1}{4} \times 4\frac{1}{4} \times 2$  inch sections. It is made for the 10-frame Langstroth hive, but may be made to suit any sized hive or sections. It can be used with or without separators. It is a second story, made to suit the size of the section to be used. The sections are to be placed in broad frames, without tops. They are strong, very simple, and easily manipulated. They can be tiered up, one above another, or two of them may be put on the hive at once, a frame of sections removed from each, and a frame of brood put in its place, to cause the bees to commence work in sections. If 56 sections, or 48 after

8 are removed, is thought to be too many, early in the season, the bees may be excluded from a part of them by simply turning those not to be used in the lower super on their sides, or putting a piece of picture backing, or cotton sheeting, under them, and using the wedges as division boards. The hooks holding the movable sides are too small, but are all I have on hand.

A. J. HATFIELD, 57-88.

New Carlisle, Ind., Feb. 17, 1883.

[The Rack is received and placed in the Museum. It is so well described by Mr. Hatfield that it is useless to add anything to it.—ED.]

### Preventing Increase.

Having now 283 colonies of bees, I do not desire any increase, and intend to run them for comb honey; that, in the past, I could not do, without the swarming fever taking place and partly frustrating my plans. In the BEE JOURNAL, No. 40, July 26, 1882, page 474, I saw an article by Prof. A. J. Cook, on "Increase of Colonies Prevented." After reading that article I would like to put it to the test, but as my honey flow ceased about July 20, I had no opportunity to do so. I would like to ask, through the BEE JOURNAL, any apiarist who has tried that plan to kindly report the result. If it can be successfully done to the amount of 75 per cent. I shall be delighted, and I know I am not alone in this matter. Thus far, bees are wintering well.

J. B. HALL.

Woodstock, Ont., Feb. 10, 1883.

### Bees Eating their Combs.

Two of my colonies of bees are eating their combs. One had about 60 lbs. of honey and plenty of pollen, and was in tolerably good condition, but it had no queen, and many bees were dead. The other colony had lots of frost in the hive, and was in very poor condition, but it had a queen, and though the bees were not dead, they could not fly in the sunshine. What is the reason for their doing so?

M. M. SPERRY.

La Harpe, Ill., Feb. 13, 1883.

[While bees cut their comb for various purposes, such as making passage ways, shortening the depth of cells, etc., they do not eat it. They often cut and drag out excess of bee-bread.

The second colony mentioned, if not starved, is, very likely, badly diseased with dysentery, though the outward symptoms may not have been observed by you.—ED.]

### More Encouraged.

Since writing my letter, published on page 109, my bees have had a flight. I have cleaned out the dead bees from the greater part of the hives, and I find that some have commenced breeding. They have a great deal of pollen, but I think they will get through all right, if the weather is not wet and cold too long.

S. VALENTINE.

Hagerstown, Md., Feb. 16, 1883.



**Cellars Safest for Wintering Bees.**

I commenced the spring of 1881 with 1 colony, received 75 lbs. of surplus comb honey, besides leaving a good supply for winter; had 1 swarm come out, but it went to the woods. I bought 5 colonies the following spring, increased to 15, and have taken over 400 lbs. of surplus. I am wintering part in cellar and part in chaff hives. I think those in the cellar are doing the best, but all are doing well. I have about 75 lbs. of wax, which I want worked up for my own use. When would be the proper time to have it worked in order to have it fresh, and when ought I to commence giving it to bees to draw out for my young swarms? T. S. JOHNSON.

Bogart, O.

[You should get it made up soon, so as to have it on hand when you want to use it, which will be in the spring. Insert a full sheet in the centre of the brood nest only as fast as the bees will use it. All that depends on the weather, and the honey flow.—ED.]

**Chaff Packing Eaten up by Stock.**

On Jan. 18 and 19 we had a blizzard that has made havoc among our bees. It was 20° below zero, on the 19th; on the 31st it again started at 10° below zero, and has been cold up to the present date. Most of the bees are wintered on the summer stands, packed in sawdust and chaff. One thing with our wheat chaff: the thrashing-machines do not take all the wheat out of the straw and chaff, and it becomes a harbor for mice, and they disturb the bees too much during the cold weather. One of my neighbors had his bees packed in the old style of stack hive, with corn fodder, and an old cow just feasted on the fodder until she had bared the most of his hives, and it is much the same with lucern chaff, if the calves get into the lots where it is, they will be around all night disturbing the bees and eating the lucern. JNO. DUNN.

Tooele City, Utah, Feb. 12, 1883.

**The Half-Pound Section Craze.**

There seems to be a great deal of enthusiasm displayed, for the past few weeks, by some, in trying to invent a half-pound section. While I admired the good judgment, used by some, in determining the proper size and dimensions most desirable for such sections, I must say that it seems to me as if they are directing their energies in the wrong way to aid in the profitable production of comb honey at a reasonable price. I admit that if but a few of these half-pound sections were used, they might be sold for a price that would pay for the extra cost and trouble, but I predict that, if any are used, many will be used, for *this is America*; and few are willing to be outdone in extravagance, but the time will soon come when we shall be unable to sell these half-pound sections of honey for enough more to pay for the extra cost, which would be no small matter in large

apiaries, if we consider all the manipulations, preparing for market, etc. The retailer will want more profit, per pound, for the trouble of selling a half-pound package just as much as for a pound. This I know by experience, for in disposing of about 8,000 lbs. of honey, during the past season, I had a few cases of partly-filled sections, and as they were well finished, I sent them to a retailer who sold them out and found no fault with the honey, but said the per centage he received per pound did not pay for the trouble of handling, unless the boxes weighed 1 lb. each. Now, the question in my mind is, can bee-keepers afford to introduce anything smaller than one-pound sections? FRANK MCNAY.

Mauston, Wis., Feb. 10, 1883.

**Wintering Bees.**

I have 24 colonies of bees; they are in the cellar, and are all quiet, as yet; the uncapped honey was extracted, so they have had capped honey to winter on. The hives I make myself; they are 20 inches long, outside, by 15 wide; frames run crosswise of the hive. I use 2 division boards, and winter the bees on 7 frames, and give them from 10 to 15 lbs. of honey to the colony, with a passage way through each comb. In the winter of 1880-81 I lost 1 out of 9; increased to 34, and sold 15. In 1881-82 I took 500 lbs. of extracted honey from them. (I had no losses in the spring of 1882.) From the 19 colonies remaining I got 1,000 lbs. of extracted honey and 200 lbs. of comb, and sold 10 colonies. I keep a thermometer in my cellar; it stood from 4° to 8° above freezing, except 2 or 3 nights, thus far. When the mercury was down to the freezing point, they roared. JOHN BENHAM.

Homer, Mich., Feb. 16, 1883.

**Never Lost a Colony in Winter.**

The mercury is up to 66°, this morning, and I have just examined 2 colonies of bees, finding them in fine condition; one having brood in all stages. I can hardly miss the honey they have eaten; but since they have commenced rearing brood, the honey will go fast. I have yet to lose my first colony in wintering. J. P. MOORE.

Morgan, Ky., Feb. 16, 1883.

**345 lbs. of Honey Per Colony.**

I have hesitated for sometime to give, in the BEE JOURNAL, my success with bees in 1882; but reading of so many having large yields of honey, I felt that I was but a small bee man in the business, which I readily concede. I have been in the apicultural business some 16 years, using the Langstroth hive, and also a patron of the BEE JOURNAL, under the late Samuel Wagner, and always found it full of good logic. Last spring I had 5 strong colonies of bees (Italians and hybrids), to start with. The honey season was one of the best I ever experienced. From 5 colonies, I had 6 increase. One colony gave 2 swarms, and some of the others gave second swarms, but I removed all queen cells and surplus queens, and returned the swarms

to the present colonies. This stopped their swarming. I caught 4 traveling swarms by decoy hives, that contained a few sheets of empty combs, making my number 15 in the fall. My honey crop was 1,725 lbs., or 345 lbs. per colony, spring count. (955 comb, and 770 extracted.) Considering my explanations below, all will certainly give me credit for not exaggerating. Two years ago this winter I lost all my bees (35 colonies); leaving many good frames of empty comb, of which I took good care. As each of the 6 swarms came out, they were supplied with these frames, as also those caught in the decoys. There were but 2 colonies of the 15 but gave surplus honey. For me to claim (as some do) that all the honey comes from the first 5, would be unfair. This proves the great advantage to be obtained by taking care of all surplus comb, as well as benefits derived from foundation. Mr. Editor, does this explanation satisfy you that mine is a correct statement? I have nothing to gain by a misstatement, and nothing to lose by straight talk. H. W. WIXOM.

Mendota, Ill., Jan. 27, 1883.

[The explanation is sufficient; and would account for a large yield.—ED.]

**More Light.**

In the BEE JOURNAL, page 27, January, 1883, is a report from Mr. W. H. McLendon, Lake Village, Ark., headed "200 lbs. from 1 colony." After mentioning the amount of extracted and comb honey, he says, "as well as 200 lbs. of beeswax from 70 colonies in the spring, and increased them to 130, by natural swarming." Will Mr. McLendon be kind enough to explain, through the BEE JOURNAL, how he obtained the large amount of wax? It will gratify some who have kept bees for many years.

N. B. TINDALL.

Grafton, Ill., Feb. 8, 1883.

**Bees in Dakota.**

I started the season with 26 colonies, in fair condition, but owing to the cold rainy weather throughout May and June, I was compelled to feed my bees, to keep them from starving. I had no early swarms, my increase was obtained during the latter part of July and early in August. I only got 16 swarms, giving me 42 colonies to put into winter quarters; they were in good condition, and up to the present time are doing nicely. I took 2,200 lbs. of comb honey and 276 lbs. of extracted, making an average of 95¼ lbs. to the colony, spring count, which I consider very good for last season. I use a double-walled hive and winter on the summer stands. I will give you the result for the past 4 winters, as follows: In the fall of 1878 I had 5 colonies, and lost one during the winter. In the fall of 1879 I had 10 colonies, and lost none during the winter. In the fall of 1880 I had 22 colonies, and lost one during the winter. In the fall of 1881 I had 26 colonies; lost none. Last fall I had 42, and as above stated, have done nicely up to the present time; although

the weather has been very severe since Dec. 25. The BEE JOURNAL failed to put in an appearance this week for the first time since I became a subscriber. I have become so accustomed to it that I am lonesome without it; the snow blockade must be the cause. I hope it will make its way through, for its bright pages are as welcome to me as the smiling face of a friend.

W. M. VINSON.

Elk Point, Dak., Feb. 5, 1883.

#### Shipping Honey to England.

Please give a report of the proceedings of the Northeastern Convention, held Jan. 9 and 11, at Syracuse, in the Weekly BEE JOURNAL. I have been expecting to see it, as usual, and I have no doubt it will be interesting to all who were not there. Would you advise shipping prime extracted honey to England, next year? Can 10c. net, in bulk, be realized by shipping? Answer in BEE JOURNAL.

J. E. THOM.

Streetsville, Ont., Feb. 9, 1883.

[The proceedings of the Northeastern Convention have not yet been received from the secretary, or they might have been published.

As to shipping honey to England, we advise you to write to honey dealers in that country about the matter of realizing 10 cents per pound, net, in bulk.—Ed.]

#### All is Well.

The floods have done incalculable damage. On the 15th and 16th instant the weather was like summer; the bees roared as they do in the spring of the year. Our bees are safe, so far. The winter has been wonderfully wet and changeable. I feared the results, but—"all is well."

G. W. DEMAREE.

Christiansburg, Ky., Feb. 17, 1883.

#### Bee-Keeping in Virginia.

MY REPORT FOR 1882.—I ran 12 colonies for extracted honey; they yielded 4 barrels of honey, or an average of 116 lbs. to the hive; all of it sold at 12½ cts. per pound, making \$172.80. I had some 300 lbs. of comb honey in one-pound sections, which I sold at 12½ cts. per pound. I cannot sell one grade of honey here any higher than another. When a customer comes to me for honey, I sell him the kind he wants; if he wants it cut out of the sections and put into a bucket, I cut it out; if he wants it stirred up, I take a stick and stir it into a mush. The same 12 colonies that gave the 4 barrels, also gave 72 frames of honey, nearly all full and capped, which I took out late this fall. I do not know what they will weigh, but I estimate them, an average of 6 lbs., which would make 432 lbs.; this was gathered from asters in September and October. Northerners must stop saying that we cannot produce as nice honey in latitude 36° as they can in 40°. I will venture to say that Southwestern Virginia and Northwestern North Carolina produce as white

honey as anywhere on the globe. The most beautiful honey I ever saw was in Wilks Co., N. C. I do not know what kind of flowers it was gathered from, but I expect it was from sourwood. I have some honey that has candied, when put on the table you cannot tell it from light-colored butter. I have produced sections almost as white as snow. The flowers we get our honey from are as follows: The first to bloom in the spring are elm and willow; then comes locusts, whortleberries and blackberries; then poplar and white clover, which is very abundant; then follow linden, golden-rod and buckwheat; asters comes in September and bloom until cold weather. The mercury hardly ever goes below zero, so our bees never winter-kill, to any extent.

JOHN FARIS.

Town House, Va., Feb. 7, 1883.

#### Packed in Chaff—No Losses.

My 25 colonies of bees, that I packed last fall, in the Langstroth hives, are all right. They had a nice flight yesterday, and to-day I examined all of them; they have brood in all stages, and some young bees are crawling over the combs in several of the hives. I packed my bees on the summer stands, with wheat straw on the sides and back end of hive, and chaff cushions over the frames; and I never lose any bees in this way of packing.

A. T. KELLY.

Franklin, Ind., Feb. 16, 1883.

#### Lovely Weather in Florida.

The weather is lovely here now, just what is wanted during the State Fair. I have been out to the Fair twice, and find the display of fruits to be very good. The part of most interest to the readers of the AMERICAN BEE JOURNAL is the display of W. S. Hart, of New Smyrna. He has some of the finest comb honey I ever saw; it, and his display of extracted honey, cannot be beaten outside of Florida. Mr. H. also has everything necessary for successful bee-keeping.

H. G. BURNETT.

Jacksonville, Fla., Feb. 15, 1883.

#### Statistical.

I sometimes think it would have been better if the amount of foundation used by each bee-keeper had been included in the reports; mine would read as follows: 20 colonies, fall of 1881; 20 colonies, spring of 1882; 58 colonies, fall of 1882; 300 lbs. of comb honey; 2,300 lbs. of extracted honey; 10 lbs. of beeswax; and 100 lbs. of foundation used in brood frames.

AUG. J. HINTZ, 20-58.

Lamont, Ill.

#### Too Much Sorghum.

Yesterday, the thermometer being about 45°, I walked out among my bees, and found two colonies flying briskly, daubing the entrance, front of the hive and alighting-boards. The others (20 in number), seem to be all right now, but I fear they have too much sorghum honey in the hives, as there were several crops worked up

in this immediate neighborhood, and thousands of my bees were destroyed in the boiling fluid. There has hardly been a week this winter that bees could not fly. I use the Simplicity hive, with division boards and chaff cushions, and the two that seem to have dysentery are better protected than the others, having a large box turned down over the hive. One of the queens is a perfect beauty; I obtained it from Mr. H. C. Hersperger, who, I think, has a very superior strain of bees, as regards docility and industry. I propose to test several of the better strains during the coming season, in an endeavor to find the best.

N. H. ROWLAND.

Keene, Ky., Jan. 31, 1883.

#### Mortality Among Unprotected Bees.

My bees, wintered on the summer stands, had a flight to-day, the first time since Dec. 23. I made a thorough examination, and I find many colonies in bad condition. They were packed in sawdust. Those in the cellar are wintering well. My neighbors have bees left on the summer stands, unprotected, and I looked over several of them, and I feel safe in saying more than half of them are dead. It has been very cold; as low as 36° below zero on Jan. 22; the snow is about 18 inches deep on the level, but it is raining to-night. I fear the mortality among the bees will equal, if not exceed, that of 1890-81. I hope Mr. Sorrick will call a convention at Des Moines, as he has suggested.

H. CLARK.

Palmyra, Iowa, Feb. 13, 1883.

#### Scarcity of Water in California.

The rain fall this winter, so far, has been only 22½ inches. Since 1878 the rain has been insufficient, consequently the surface of the country is very dry, and, in the mountains, the springs and streams are unusually low. The general appearance of vegetation shows the effect of the drouth. Last winter we had but little rain, until February. The bee-keepers of California were hoping for a wet winter, as a good honey yield generally follows such a winter. At present the prospect for the bee-keepers is not encouraging, and, unless it rains soon, California will not have honey enough to supply the home demand.

J. E. PLEASANTS.

Carbondale, Cal., Feb. 5, 1883.

#### Sowing and Planting for Honey.

I see many favorable reports of the honey crop for last year; mine was as favorable as any. As to the best honey plant, there is nothing that equals the basswood. Clover is also spoken of, as being first-class; I only consider it second-class for quantity, and that is governed by the season. Care should be taken to have plenty of bee pasture. To sow, plant and cultivate is the only way to make the business profitable. It is about time for nurserymen and seed men to advertise in the BEE JOURNAL, to get the bee-keepers at work preparing for the next spring. I shall want some-



thing of the kind, and desire to know where I can do the best. Bees in this locality are all right, up to this writing; if the spring opens fairly, the coming season, will be a prosperous one. I take my opinion from the condition of the soil. The freezes and dry weather have not destroyed any of the plants, as yet. I hope soon to see some advertisements of plants and seeds for the coming season, and also to hear of interest taken in sowing and planting—that prosperity may abound among bee-keepers.

THOMAS PRALL.

Carlisle, Iowa, Feb. 3, 1883.

#### Bees Uneasy in the Cellar.

My bees are in frame hives; some of them are covered with gunny or old coffee sacks placed on top of the frames and a board laid on top of that; one is covered the same way with heavy paper in place of the gunny; the others have a honey board that fits the top of the hive, and a cap that comes down over the top of the hive and shuts it up tightly. They are all well filled with honey, and are strong colonies. They are in a dark, dry cellar, and those that have the caps on are very uneasy, while those with the gunny and paper on are quiet. Should I take the caps off, and give the hives ventilation at the top? Would it do to put lights in the cellar, and let them fly in the cellar? How warm does it need to be for them to fly?

W. T. GREEN.

Union Pier, Mich., Feb. 16, 1883.

[By request, Mr. Heddon replies to the above, thus: "I should have to know further of the exact condition, in every respect, of the two classes of hives you mention, in order to account for the difference in behavior of the colonies. Try alterations of two or three of the uneasy colonies, and note effects? Often colonies are very uneasy and yet persist in wintering well. By no means give them any inducement to fly in the cellar, nor out-doors until the temperature is right. Let your cellar remain dark, and at such temperature as that in which the bees keep most quiet." If Mr. Green wishes any further answer than the above, he will please send particulars to Mr. Heddon.—ED.]

#### Sending Bees South for Winter.

On Feb. 6, at about 4 p. m., a gentleman came into my office and said to me: "I am E. T. Flanagan, of Belleville, Ill." After reciprocated compliments, we went to the apiary and examined bees and queens, until it was too dark, when we returned to the office, and we got so interested in discussing bees, that it was nearly 9 o'clock when I thought of supper, after which we resumed the subject, and it was 2 o'clock in the morning when we thought of bed. Next morning, after showing him my steam factory, we went back in the apiary, and showed him how I reared queens,

and we also examined my 4 and 5 frame nuclei, wintering on their summer stands, etc. I am wintering 35 colonies of bees for him, which are to be sent back to him by May 1, increased to double and full of bees. He has taken with him 5 of the best, to Kennerville, La., so as to Italianize 100 colonies he has just bought there, and they are to be doubled up and sent back to him in May; he has a man there to attend to the bees, so that he will get about 250 to 275 colonies of bees in his apiaries at Belleville, Ill., by the middle of May, strong and in condition to gather a crop. He says that he intends to send his bees South every fall to winter, and have them returned double in number by the first week in May, and thus not run the risk of wintering, and have them home, etc. The cost of sending me the colonies were 50 cents each; they will cost no more to return, and as far as I can calculate, they will not cost him much over \$2.50 each, including the new queens for the division, etc.

P. L. VIALLO.

Bayou Goula, La., Feb. 9, 1883.

#### Had the Dysentery.

I put 70 colonies of bees, into winter quarters, well filled with winter stores; 50 of them I put into an outside cellar on Nov. 15, especially prepared for them, and they are doing well. Some of the 20, left on the summer stands, had the dysentery about Jan. 20; these I moved into the cellar, and it seemed to check the disease; as just as I saw symptoms of the disease I moved them in, until I have only 7 left on the summer stands. I see no more of the disease in those that I moved into the cellar. Will there be any danger of the disease spreading in the cellar?

M. H. LEWIS.

Green Top, Mo., Feb. 15, 1883.

[The cause having been removed, the effect ceases; there is no danger of the disease spreading in the cellar.—ED.]

#### Expects a Good Season this Year.

My 107 colonies of bees, up to the present time, are in splendid condition; they were put in the cellar Nov. 15, 1882, and will there remain until natural pollen appears. I expect a good honey season, this year; last year was a very poor one, but there was a good demand for honey at 18 cts. per lb.

F. G. KINNEY.

Bristol, Ind., Feb. 22, 1883.

#### What Bees Get from Corn.

Bees had a glorious flight to-day; they flew from 11 a. m. till 4 p. m.; they commenced cleaning house, brought out some half-grown young bees. Every colony is alive and strong, one crawled up my coat into the back of my neck, and elevated me a trifle. What is the use of breeding any longer for the coming bee? Why not get some of the bees Mr. Stewart speaks of, that can split a corn stalk from end to end, and just flood the whole country with honey? I have

seen bees work in corn stalks late in the fall, after the corn was cut up and the sap oozed out of the stump, but that is all. They gather pollen from the tassels, early in the morning, and on moist, cloudy days. If bees can gather honey from corn stalks, there is corn enough grown in Illinois and Iowa to float the United States navy.

JAMES RONIAN.

Villisca, Iowa, Feb. 20, 1883.

#### Maryland—Bees All Right.

I took off the cushions from my hives and put one thickness of burlap over them. They came through all right, and had a good flight last Saturday. I put wire screens over the entrances, and to keep the bees from suffocation, by the entrances being clogged up, I tipped the hives back a little.

THOS. THURLOW.

Federalsburgh, Md., Feb. 19, 1883.

#### Symptoms of Disease.

Please give symptoms when the bees have dysentery. Do the feces look any different from the healthy ones? Some of my bees are very uneasy, and when they come out to the air, they eject a great deal more feces than others.

W. T. GREEN.

Union, Mich., Feb. 19, 1883.

[Yes; the feces are yellowish, and the bees soil the entrance and combs, their bodies being unusually distended. A good cleansing flight will remedy the difficulty.—ED.]

#### Bees Gathering Pollen.

My bees are all very strong in numbers, and are gathering pollen rapidly now, and the queens are filling empty combs with eggs.

R. J. ADAMS.

Lakeport, Ark., Feb. 16, 1883.

#### Cold, but Bees are Comfortable.

We have had a very cold, changeable winter. The mercury has been 29 times at and below zero. On the 16th it fell 20° in 3 hours. On the 27th of last month it was 28° below zero. Our 84 colonies are wintering nicely in the house cellar, although it seemed impossible to keep it as warm as it should be; they keep very quiet, and show no signs of dysentery, and but very few dead bees on the floor.

S. L. VAIL.

Coal Creek, Iowa, Feb. 19, 1883.

#### Sealed Brood on Two Frames.

Last fall I packed 37 colonies of bees. Yesterday and to-day they had a good flight. I looked through 22 hives and found sealed brood on two frames; some hatching, and all doing well. Some I packed on the summer stands; the rest were put on a broad board, 6 inches apart, the spaces filled with straw, the hives faced the south, and they were covered with boards, extending well over the fronts; corn fodder was placed along, back of the hives (the north side). I see no difference in the bees, between those packed and the ones on the board.

WM. G. GOSNEY.

Demossville, Ky., Feb. 16, 1883.

## Special Notices.

Examine the Date following your name on the wrapper label of this paper; it indicates the end of the month to which you have paid your subscription on the BEE JOURNAL.

For safety, when sending money to this office get either a post office or express money order, a bank draft on New York or Chicago, or register the letter. Postage stamps of any kind may be sent for amounts less than one dollar. Local checks are subject to a discount of 25 cents at Chicago banks. American Express money orders for \$5, or less, can be obtained for 5 cents.

We wish to impress upon every one the necessity of being very specific, and carefully to state what they desire for the money sent. Also, if they live near one post office, and get their mail at another, be sure to give us the address we already have on our books.

### Honey as Food and Medicine.

A new edition, revised and enlarged, the new pages being devoted to new Recipes for Honey Medicines, all kinds of cooking in which honey is used, and healthful and pleasant beverages.

We have put the price of them low to encourage bee-keepers to scatter them far and wide. Single copy 6 cents, postpaid; per dozen, 50 cents; per hundred, \$4.00. On orders of 100 or more, we print, if desired, on the cover-page, "Presented by," etc., (giving the name and address of the bee-keeper who scatters them). This alone will pay him for all his trouble and expense—enabling him to dispose of his honey at home, at a good profit.

Emerson Binders—made especially for the BEE JOURNAL, are lettered in gold on the back, and make a very convenient way of preserving the BEE JOURNAL as fast as received. They will be sent, post-paid, for 75 cents, for the Weekly; or for the Monthly, 50 cents. They cannot be sent by mail to Canada.

Notice.—Bee-Keepers, we call your special attention to the advertisement of Champion Bee-hive Manfactory. 2t

Advertisements intended for the BEE JOURNAL must reach this office by Saturday of the previous week.

Postage stamps, of one, two or three cent denomination, accepted for fractional parts of a dollar; but money is preferred.

## Honey and Beeswax Market.

OFFICE OF AMERICAN BEE JOURNAL,  
Monday, 10 a. m., February 26, 1882.

The following are the latest quotations for honey and beeswax received up to this hour:

### Quotations of Cash Buyers.

#### CHICAGO.

HONEY—Extracted, dark 7c. light, 9c. here.  
BEESWAX—It is quite scarce. I am paying 30c. for good yellow wax, on arrival; dark and off colors, 17@25c.

AL. H. NEWMAN, 923 W. Madison St.

#### CINCINNATI.

HONEY—There is no excitement in the honey market, but sales are fair to our regular trade. Offerings are plentiful of extracted and comb honey. Extracted brings 7@9c. on arrival. The sales of comb honey are very slow, although there is a large supply of first-class quality on the market. It brings 12@18c. on arrival.  
BEESWAX—Comes in slowly and brings 20@30c. per lb., according to quality. CHAS. F. MUTH.

### Quotations of Commission Merchants.

#### CHICAGO.

HONEY—The past month has not reduced the stock of comb or extracted honey, the receipts having been larger than the amounts taken for consumption. Prices are weak and irregular, ranging from 16c. to 18c. for white comb in the smaller frames; dark, very little selling, offered at 12@14c. Extracted, 8c. to 10c., according to color.

BEESWAX—32@33c. per lb. for good.  
R. A. BURNETT, 161 South Water St.

#### SAN FRANCISCO.

HONEY—For common qualities there is no demand. In a small way strictly fancy lots of either comb or extracted might be placed at an advance on quotations.

White comb, 14@17c.; dark to good, 11@13c.; extracted, choice to extra white, 8@9@10c.; dark and candied, 5@7@8c.

BEESWAX—We quote 25@28c.  
STEARNS & SMITH, 423 Front Street.

#### ST. LOUIS.

HONEY—Very quiet; dull. Comb at 14@16c., strained, at 6@7@7½c., extracted at 7½@8½c.—lots in small packages, more.

BEESWAX—Scarce, firm; quote choice at 28@30c., dark at 22@24c.  
W. T. ANDERSON & CO., 117 N. Main Street.

#### CLEVELAND.

HONEY—Is very slow, just now hardly anything selling, stock on hand quite liberal. Sales slow at 18@20c. for best white 1-lb. sections; 18@19c. for 2-lb. Second grades not inquired after. Extracted very dull at 9@10c. in bbls. and 11@13c. in cans.

BEESWAX—Scarce, 28@30c.  
A. C. KENDEL, 115 Ontario Street.

#### NEW YORK.

HONEY—Choice to fancy white clover honey continues scarce and firm, but buckwheat and extracted honey slow and irregular.

We quote: White clover, first quality, 1 lb. boxes, 24@25c.; fair to good, 22@23c.; buckwheat, 15@17c. Extracted, clover, 10@13c.; buckwheat, 9@10c.

BEESWAX—There is only a moderate supply of beeswax and prime lots held firmly.  
Western pure, 30@32c.; southern, pure, 31@33c.  
D. W. QUINBY, 105 Park Place.

#### BOSTON.

HONEY—Our market is fairly active. We quote: ¼ lb. sections at 30c.; 1 lb. sections, 22@25c.; 2 lb. sections, 20@22c. Extracted, 10c. per lb. Good lots of extracted are wanted in kegs or barrels.

BEESWAX—Our supply is gone; we have none to quote.

CROCKER & BLAKE, 57 Chatham Street.

## The Apiary Register.

All who intend to be systematic in their work in the apiary, should get a copy and commence to use it.

For 50 colonies (120 pages).....\$1 00  
" 100 colonies (220 pages)..... 1 50  
" 200 colonies (420 pages)..... 2 00

The larger ones can be used for a few colonies, give room for an increase of numbers, and still keep the record all together in one book, and are therefore the most desirable ones.

## Convention Notices.

The Union Bee-Keepers' Association will meet in Grange Hall, Eminence, Ky., on Thursday, April 26, 1883. All bee-keepers, and the public generally, are invited to be present.

G. W. DEMAREE, Sec.  
Christiansburg, Ky.

The Texas State Bee-Keepers' Association will hold its Fifth Annual Convention at McKinney, Collin Co., on Tuesday and Wednesday, April 17th and 18th, 1883; at the residence of Hon. W. H. Andrews.

WM. R. HOWARD, Sec.  
Kingston, Texas.

The next meeting of the Haldimand, Ont., Bee-Keepers' Association will be held at Nelle's Corners on Saturday, March 31, 1883, at 11 a. m.

H. CAMPBELL.

The Western Bee-Keepers' Association meets at Independence, Mo., April 28, 1883.

S. W. SALISBURY, Sec.

The Eastern Michigan Bee-Keepers' Society, will hold its annual meeting in Detroit, April 3, in Abstract Hall, commencing at 10 a. m. An interesting meeting is expected, and bee-keepers are requested to send items or questions of interest to the secretary in time, that they may be announced previous to the meeting.

A. B. WEED, Sec.  
75 Baggs St., Detroit, Mich.

The Central Michigan Bee-Keepers' Association holds its spring convention at Lansing, in the State Capitol building, on Tuesday, April 17, 1883, 9 a. m. Programme: President's address (Prof. A. J. Cook), on Wintering Bees. Essays: S. C. Perry, on Chaff Hives; C. Case, on Comb Honey; O. S. Smith, on the Best Bee; A. D. Benham, on Extracted Honey; Mr. Harper, on Queen-Rearing; Mr. Waldo, on Best Method of Wintering Out of Doors, in Single-Walled Hives; E. N. Wood, on Sections; and E. Greenaway, on Comb Foundation. All bee-keepers are invited to attend or send essays, papers, implements or anything of interest to the fraternity. A full attendance is requested.

E. N. WOOD, Sec.  
North Lansing, Mich.

Articles for publication must be written on a separate piece of paper from items of business.

We have a few copies of our pamphlet entitled "Bee Culture" left, and have reduced the price from 40 to 25 cents each, or \$2 per dozen.

## 50 Colonies Italian Bees FOR SALE CHEAP.

Address, W. J. ANDREWS,  
SALT COLUMBIA, TENN.



## A NEW BEE BOOK

DZIERZON'S  
Rational Bee - Keeping.

A Translation of the Masterpiece of that most celebrated German authority, by H. Dieck and S. Stutterd, and edited, with notes, by

CHARLES N. ABBOTT,  
Editor of the "British Bee Journal."

MANY FAC-SIMILE ILLUSTRATIONS,  
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Bound in cloth, lettered, \$2.00, postpaid.

Dr. Dzierzon, of Germany, is one of the greatest living authorities on Bee Culture. To him and the Baron of Berlepsch we are indebted for much that is known of scientific bee culture.

## Opinions of American Apirarists

Since Dzierzon's system has been made known an entire revolution in Bee Culture has been produced, a new era has been created for it, and beekeepers are turning their attention to it with renewed zeal. Page 21, Hive and Honey Bee, by Rev. L. L. LANGSTROTH.

"Dr. Dzierzon, the Quibby of practical and scientific apiculture, must rank with the great Huber."—Prof. A. J. COOK.

Dzierzon established the fact that all impregnated eggs (of the Queen bee) produce workers or queens.—The late M. QUINBY.

"Dzierzon, the Quibby of Germany, confirmed the hitherto unbelieved statements of Huber, and added that equally surprising one of parthenogenesis."—Capt. J. E. HETHERINGTON.

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Box 819, Belleville, St. Clair co., Ill.  
(Proprietors of Rose Hill, Cahokia, Falling Springs and Lake Apiraris. 1A17)

ONE HUNDRED COLONIES OF ITALIAN bees for sale, at \$5.00 per colony, in lots to suit. All in good condition, and in Langstroth hives containing 10 frames.  
8A31 PAUL DUNKEN, Freeman, Missouri.

My Vegetable and Flower Seed Catalogue for 1888 will be sent FREE to all who apply. Customers of last season need not write for it. All sent from my establishment warranted to be both fresh and true to name, so far, that should it prove otherwise, I agree to refill the order gratis. My collection of vegetable seed is one of the most extensive to be found in any American catalogue, and a large part of it is of my own growing. As the original introducer of Early Ohio and Hubbard Squashes, Marblehead Early Corn, the Hubbard Squash, Marblehead Cabbage, Phinney's Melon, and a score of other new Vegetables, I invite the patronage of the public. In the gardens and on the farms of those who plant my seed will be found my best advertisement. James J. H. Gregory, Marblehead, Mass.

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Have taken "Practical Farmer" 27 years. It is one of the best agricultural weeklies.—A. SCOTT, Del. Co., Pa. Been a subscriber for 25 years, find it a pleasant and helpful visitor.—C. W. GARR, Manassas, Pa. The second paper I read on list of seven, been taking it many years. Like it.—D. B. LATIMER, Vincent, Pa. Enclosed find subscription for my 18th year.—A. H. CARAY, Camden, Del. Have taken "Practical Farmer" 26 years. Consider it indispensable in every farmer's family.—J. W. COOPER, Whitesburg, Del. Samples of letters received daily, showing the high esteem in which the paper is held. To enable you to become its practical friend, as thousands have already done, we offer to send it on trial for six months, 26 weeks, and make you a free gift of a beautiful sugar and salt spoon, per illustration, on receipt of 54 cts. (in 3-ct. postage stamps) The paper has excellence for all engaged in rural pursuits.

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on ten-frame Hives, good dressed lumber, painted white. Size of frame: 15 1/2 x 9 3/4 inches, outside measure. Combs are nice and straight, two-thirds from drawn foundation. Also, upper story and 7 broad frames, holding 21 sections, 4 5/8 x 4 1/4 inches.

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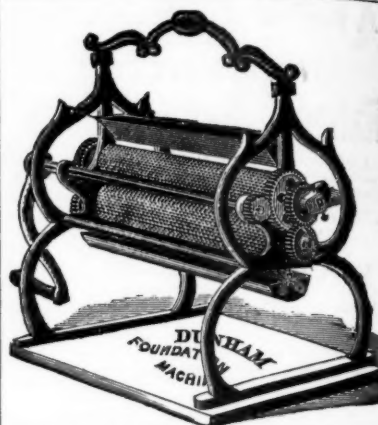
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